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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,567	02/18/2004	Thomas J. Dougherty	054821-0471	9293

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EXAMINER

TIBBITS, PIA FLORENCE

ART UNIT	PAPER NUMBER
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2838

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/781,567

Applicant(s)

DOUGHERTY ET AL.

Examiner

Pia F Tibbits

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office action is in answer to the continuation application filed 2/18/2004. Claims 1-38 are pending.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the vehicle, the timer, the look-up table, the warning signal, etc. must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter: "acceleration factor"; "historical information"; "first state"; "first temperature"; "first state

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of charge"; "first acceleration factor"; "second acceleration factor"; "second state", etc. See 37

CFR 1.75(d)(1) and MPEP § 608.01(o). Correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-38 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 20 and 30: the limitation "acceleration factor" is not clear. The specification describes "the time the battery is at the voltage and temperature is multiplied by the acceleration factor based on voltage and temperature (step 58), resulting in a prediction of the amount of life lost of the battery due to voltage and temperature", while the specific voltage and temperature, on which the acceleration factor is based, are not defined. In order to continue prosecution it was assumed that the acceleration factor refers to accumulating statistics about the usage of the battery, so that a car owner could be notified when the battery has aged to the point where it is necessary to change the battery.

Claim 1, the statement following "whereby" is not given patentable weight, since the courts held that the functional "whereby" statement does not define any structure and accordingly cannot serve to distinguish. *In re Mason*, 114 USPQ 127, 44 CCPA 937 (1957).

Claims 20 and 27: "sufficient power" is indefinite.

Claims 20-38: MPEP 2100 states that it is improper to rely on speculative assumptions regarding the meaning of a claim, if no reasonably definite meaning can be ascribed to certain claim language and then base a rejection under 35 U.S.C. 103 on these assumptions, since the claim is indefinite, not obvious. *In re Wilson*, 424 F.2d 1382, 165 USPQ 494 (CCPA 1970), *In re Steele*, 305 F.2d 859, 134 USPQ 292 (CCPA 1962).

Claim Rejections - 35 USC § 103

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6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Gupta** [5349535].

Gupta discloses in figures 1-5 a device 6 for predicting the remaining life of a battery 5 for an electric vehicle comprising obtaining a value representative of the amount of remaining life for a battery in a new and fully charged state, monitoring at least one parameter of the battery during use of the battery [see also the abstract; column 2, lines 61-66; column 3, lines 51-53; column 4, lines 57-61; column 5, lines 54-58; column 6, lines 39-68; column 7, lines 1-6, 31-50; column 8, lines 16-37, 54-68]. Gupta does not disclose an acceleration factor for the at least one monitored parameter and estimating the amount of life lost from the battery utilizing the acceleration factor. However, Gupta discloses that accumulation of usage history for the battery pack would allow a more accurate "on the fly" estimation of remaining life range--an important factor for the driver. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made that Gupta's device provides an estimated value representative of the amount of remaining life for a battery by using an accumulation of usage history/acceleration factor for the battery in order to allow a driver of the electric vehicle to have adequate information regarding the battery.

As to claims 2, 3, 11, Gupta discloses monitoring the voltage, the temperature, and the state-of-charge of the battery [see also fig.2; column 5, lines 20-35; column 7, lines 40-47].

As to claims 4, 12, Gupta discloses determining an amount of time that the battery has been at a particular voltage and temperature and providing an estimate of the amount of life lost during the amount of time/a real-time (calendar) clock 23, which can supply time-and-date information to the computer, so that the historical data being stored can be time stamped [see also column 7, lines 31-35].

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This will permit analysis of the changes in battery characteristics and charge/discharge cycles over time, and other useful parameters.

As to claim 5, as best as it can be understood at this time, Gupta discloses that batteries have a limited life, lose their ability to be fully charged and to retain their charge with age and also with the rate of charge and discharge to which they are exposed. The typical life of a practical electric vehicle traction battery should be approximately 850 recharging cycles from the fully discharged state, which would vary based upon the way the vehicle is driven [see also column 2, lines 61-68].

As to claims 6, 7, Gupta discloses monitoring the state of charge of the battery [see also column 7, line 49; column 9, lines 38-68; column 10, lines 1-9].

As to claim 8, Gupta discloses estimating the amount of life lost from the battery comprises determining an amount of time that the battery has been at a particular state of charge and applying the acceleration factor/specific history of battery usage to the amount of time to obtain an estimate of the amount of life lost [see also column 10, lines 10-18].

As to claim 9, as best as it can be understood at this time, dividing the amount of time by the acceleration factor, Gupta discloses that "many statistical methods are known in the art" to combine the many parameters available to derive a more accurate measure of remaining charge and battery life. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to divide the amount of time by the acceleration factor in order to combine all the variables involved in determining the remaining charge and battery life in one equation and to derive a more accurate measure of remaining charge and battery life, since it is very well known in the art to do so in order to define a particular process by performing routine derivations of very well known equations.

As to claim 10, Gupta discloses subtracting the estimated amount of life lost from the battery from the value representative of the amount of remaining life for a battery in a new and fully charged state to obtain an adjusted value for the amount of remaining life for the battery/an estimate of energy input or output needs to be revised based on the rate of energy intake or withdrawal [see also column 7, lines 56-58].

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As to claim 13, obtaining a first acceleration factor for the temperature and voltage and a second acceleration factor for the state of charge, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a first acceleration factor for the temperature and voltage and a second acceleration factor for the state of charge, since it has been held that discovering an "optimum" or "preferred" value for a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As to claims 14 and 15, see remarks and references for claims 1-13.

As to claim 16, Gupta discloses a ROM 14, which could store a look-up table, and could interface with a CPU [see also column 6, lines 54-68].

As to claims 17-19, Gupta discloses providing a warning regarding the remaining life of the battery/battery condition output 22 [see also column 3, line 60; column 5, lines 30-36; column 7, lines 62-66; column 8, lines 54-57; column 9, lines 1-9; column 10, lines 10-18].

With respect to the method claims 1-19: the method steps will be met during the normal operation of the apparatus described above.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in PTO-892 and not mentioned above disclose related apparatus.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Pia Tibbits whose telephone number is (571) 272-2086. If unavailable, contact the Supervisory Patent Examiner Mike Sherry whose telephone number is (571) 272-2084. The Technology Center Fax number is (703) 872-9306.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PFT

August 9, 2004

Pia Tibbits

Primary Patent Examiner

A handwritten signature in black ink, consisting of a large, stylized loop that starts at the top right, curves around to the left, and then loops back down to the right.